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INEEL Sitewide Operations and Maintenance Plan for CERCLA Response Actions

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Prepared for the
U.S. Department of Energy
DOE Idaho Operations Office

ABSTRACT

This sitewide operations and maintenance plan documents how remedies mandated by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) are operated and maintained at the Idaho National Engineering and Environmental Laboratory (INEEL). The records of decision have mandated specific activities to ensure that the selected remedies remain protective of human health and the environment after the remedial activities are completed. In some cases, operations and maintenance activities have been specified for CERCLA sites during the pre-remediation phase. Therefore, this plan includes pre- and post-remediation operations and maintenance activities.

The waste area group-specific operations and maintenance plans currently in place at the INEEL are integrated in this sitewide plan. This plan will be updated as remediation activities become complete, as maintenance requirements are added or removed, or as the Department of Energy Idaho Operations Office assumes control of additional areas at the INEEL.

The *INEEL Sitewide Institutional Controls Plan for CERCLA Response Actions (*DOE/ID-11042) discussed the inspection, maintenance, repair, and reporting activities involving institutional controls at the INEEL. Therefore, maintenance of institutional controls is not discussed in this document.

The *INEEL Comprehensive Facilities and Land Use Plan* (DOE/ID-10514) provides a reference to support this plan by providing current and projected facility and land uses and by listing the CERCLA sites at the INEEL. This reference information is available electronically at http://cflup.inel.gov.

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TABLES

ACRONYMS

ARA	Auxiliary Reactor Area
ARDC	Administrative Record and Document Control
BORAX-I	Boiling Water Reactor Experiment I
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFA	Central Facilities Area
CFLUP	Comprehensive Facility and Land Use Plan
DEQ	Department of Environmental Quality
DOE	U.S. Department of Energy
DOE Idaho	U.S. Department of Energy Idaho Operations Office
EDMS	Electronic Document Management System
EPA	U.S. Environmental Protection Agency
GPRS	global positioning radiometric scanner
INEEL	Idaho National Engineering and Environmental Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
O&M	operations and maintenance
OU	operable unit
PBF	Power Burst Facility
RadCon	radiological control
ROD	record of decision
RWMC	Radioactive Waste Management Complex
SCA	soil contamination area
SDA	Subsurface Disposal Area
SL-1	Stationary Low-Power Reactor No. 1
TRA	Test Reactor Area
TSF	Technical Support Facility

USC	United States Code
WAG	waste area group
WRRTF	Water Reactor Research Test Facility

INEEL Sitewide Operation and Maintenance Plan for CERCLA Response Actions

1. INTRODUCTION/PURPOSE

This sitewide operations and maintenance (O&M) plan documents how remedies mandated by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 USC 9601 et seq.) are operated and maintained at the Idaho National Engineering and Environmental Laboratory (INEEL). Various records of decision (RODs) and comprehensive RODs have mandated specific activities intended to ensure that the remedies remain protective of human health and the environment after the remedial activities are completed. For the purposes of this plan, remedial activities are considered complete when the remedial actions have been implemented and the remedial action report has been completed and approved by the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA), and the Idaho Department of Environmental Quality (DEQ). In some cases, O&M activities have been specified for CERCLA sites during the pre-remediation phase. Therefore, this plan includes pre- and post-remediation O&M activities.

The activities addressed in waste area group (WAG)-specific O&M plans currently in place at the INEEL are compiled in this sitewide plan. However, this plan excludes day-to-day facility operations such as transportation of waste to the INEEL CERCLA Disposal Facility (ICDF) or daily inspection and maintenance of the Pump and Treat Facility at Test Area North. Discussions of excluded activities are presented in the individual WAG sections of this document.

This plan focuses on O&M activities that are in place to address the protectiveness and integrity of remedial measures at the INEEL. Examples of such activities are inspection of and reporting on the condition of engineered barriers and performance of radiological surveys. Any changes in O&M requirements will be reflected in future revisions of this plan. Included in this plan are the O&M activities for WAGs and operable units (OUs) that are under the direct control of the DOE Idaho Operations Office. Therefore, as of June 1, 2004, this plan excludes WAG 8, the Naval Reactors Facility. This plan will be revised if and when DOE Idaho assumes control of additional areas of the INEEL. Refer to Figure 1-1 for a map of the WAGs at the INEEL.

The *INEEL Sitewide Institutional Controls Plan for CERCLA Response Actions* (DOE-ID 2003a) integrates the inspection and maintenance activities for all institutional controls at INEEL CERCLA sites under the control of DOE Idaho. Therefore, institutional controls are not included in this O&M plan.

The *Idaho National Engineering and Environmental Laboratory Comprehensive Facilities and Land Use Plan* (CFLUP) (DOE-ID 1997a) is used as a reference to support this O&M plan by providing current and projected facility and land uses and by listing the CERCLA sites at the INEEL. The reference information is available electronically at http://cflup.inel.gov.

This O&M plan has been prepared to increase the efficiency in inspecting and reporting of O&M tasks across the INEEL. This O&M plan integrates the O&M portions of any previous DOE Idaho documents that describe O&M procedures at the INEEL. Only the portions of these documents that pertain to O&M are integrated. No other materials in the documents are replaced, integrated, or altered. Any future RODs that institute, maintain, or evaluate O&M activities will be consistent with this plan and will be integrated in future versions of this plan.

The frequency and extent of O&M activities will be evaluated during the five-year reviews. O&M activities might be revised or terminated after a five-year review and with the approval of the Agencies.

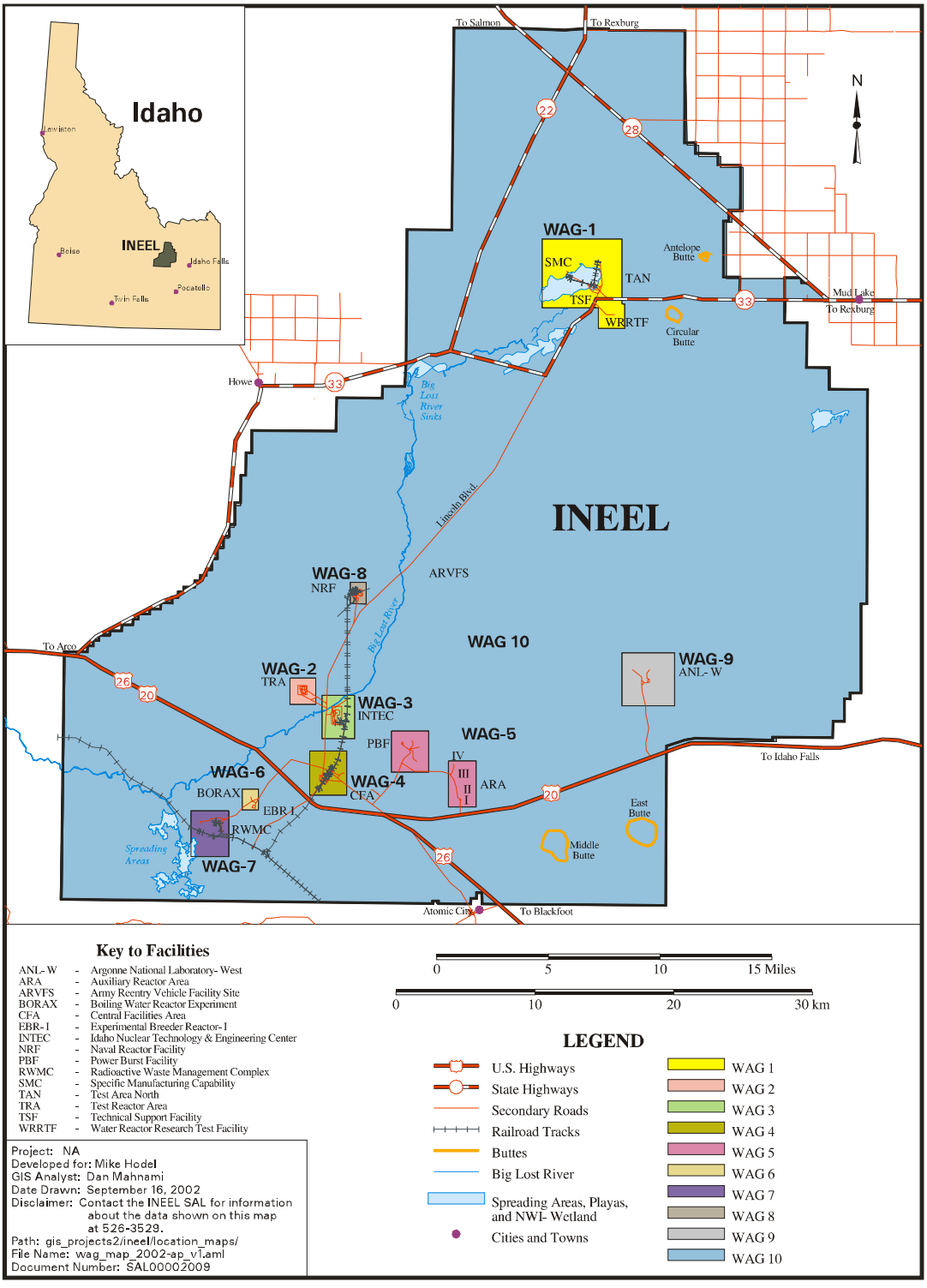

Figure 1-1. INEEL site map showing WAG locations.

2. O&M ACTIVITIES AT THE INEEL

O&M activities at the INEEL have been developed for specific WAGs and are described in specific decision document and O&M plans. The following sections contain the reference documents for each WAG and list specific O&M tasks with performance frequencies. The appendices of this plan contain O&M inspection log forms and maps, on a WAG basis, that are used to assist the inspectors in performing and documenting the O&M inspections.

The Long-term Stewardship organization will provide qualified personnel to perform and report the O&M activities described in this plan unless noted otherwise. Personnel will be trained on the requirements of the approved plan prior to performing O&M activities. The O&M activities will be performed and reported annually unless noted otherwise. The timing of O&M inspections will be coordinated with the annual inspection of institutional controls, if possible, in order to avoid duplication of visits. Reporting of the O&M inspections and maintenance activities will be compiled annually as an INEEL-wide report. Inspection records, photographs, and other documentation will be permanently stored in the Electronic Document Management System (EDMS) at the INEEL.

Radiological surveys are performed using the global positioning radiometric scanner (GPRS) or the in situ high-purity germanium scanner or by radiological control (RadCon) technicians as O&M activities at the following sites:

- WAG 1—Technical Support Facility (TSF)-06 Area B, TSF-07, TSF-09, TSF-18, and TSF-26 (annually by GPRS)
- WAG 2—Test Reactor Area (TRA)-13, TRA-13 Soil Contamination Area (annually by GPRS), TRA-03 (annually by GPRS around the perimeter and in situ high-purity germanium detector on the barrier)
- WAG 4—Central Facilities Area (CFA)-08 (at the five-year review by in situ high-purity germanium detector)
- WAG 5—Auxiliary Reactor Area (ARA)-02, ARA-06, ARA-12, ARA-23, ARA-25 (at five-year review), and Stationary Low-Power Reactor No. 1 (SL-1) (annually by RadCon)
- WAG 6—Boiling Water Reactor Experiment I (BORAX-I) Burial Ground (annually by RadCon).

2.1 WAG 1, Test Area North

The following decision documents apply to WAG 1, Test Area North:

- *Record of Decision, Declaration for the Technical Support Facility Injection Well (TSF-05) and Surrounding Groundwater Contamination (TSF-23) and Miscellaneous No Action Sites Final Remedial Action,* DOE/ID-10139, August 1995 (DOE-ID 1995a).
- *Explanation of Significant Differences from the Record of Decision for the Technical Support Facility Injection Well (TSF-O5) and Surrounding Groundwater Contamination (TSF-23) and Miscellaneous No Action Sites, Final Remedial Action,* INEEL/EXT-97-00931, November 1997 (INEEL 1997).
- *Final Record of Decision for Test Area North, Operable Unit 1-10,* DOE/ID-10682, Rev. 0, October 1999 (DOE-ID 1999a).

- *Record of Decision Amendment – Technical Support Facility Injection Well (TSF-05) and Surrounding Groundwater Contamination (TSF-23) and Miscellaneous No Action Sites, Final Remedial Action,* DOE/ID-10139 Amendment, September 2001 (DOE-ID 2001a).

- *Explanation of Significant Differences for the Record of Decision for the Test Area North Operable Unit 1-10 ESD,* DOE/ID-11050, Rev. 0, April 2003 (DOE-ID 2003b).

- *Record of Decision Amendment for the V-Tanks (TSF-09 and TSF-18) and Explanation of Significant Differences for the PM-2A Tanks (TSF-26) and TSF-06, Area 10, at Test Area North, Operable Unit 1-10*, DOE/ID-10682 Amend, Rev. 0, February 2004 (DOE-ID 2004a).

2.1.1 Operable Unit 1-10

O&M activities at WAG 1 are described in the *Operations and Maintenance Plan for Test Area North, Operable Unit 1-10* (DOE-ID 2001b). O&M activities for OU 1-10 are detailed in this section and are summarized in Table 2-1. See Appendix A for the WAG 1 O&M inspection log and map.

Table 2-1. Annual O&M inspection activities for OU 1-10 at WAG 1.

Site	O&M Requirement	Action/Schedule
TSF-06 Area B Soil Contamination Area South of the Turntable	Periodic environmental monitoring.	Annual radiological survey of site perimeter until first five-year review.
	Periodic intrusion monitoring and subsidence/erosion inspections.	Annual visual inspection of soil surface for subsidence, erosion, and animal intrusion.
TSF-07 Disposal Pond	Periodic environmental monitoring.	Annual radiological survey of site perimeter until first five-year review.
	Sampling for releasing land use restrictions.	Sampling in 2071.
TSF-09, TSF-18 (V-Tanks)	Periodic environmental monitoring.	Annual radiological survey of site perimeter until first five-year review.
	Periodic intrusion monitoring and subsidence/erosion inspections.	Annual visual inspection of soil surface for subsidence, erosion, and animal intrusion.
TSF-26, PM2A Area	Periodic environmental monitoring.	Annual radiological survey of site perimeter until first five-year review.
	Periodic intrusion monitoring and subsidence/erosion inspections.	Annual visual inspection of soil surface for subsidence, erosion, and animal intrusion.
WRRTF-01 (Burn Pits)	Periodic intrusion monitoring and subsidence/erosion inspections.	Annual visual inspection of soil surface for subsidence, erosion, and animal intrusion.
	Periodic inspection of native soil cover at WRRTF-01 when caps are completed.	To be determined.

2.1.1.1 *Soil Cover Erosion, Subsidence, and Intrusion.*

TSF-03, TSF-06 Area B, TSF-09, TSF-18, TSF-26, and Water Reactor Research Test Facility (WRRTF)-01 are inspected annually. Visual inspection will identify areas of erosion and/or subsidence or animal intrusions. The areas exhibiting these characteristics will be documented, photographed, and repaired with additional soil to return them to the surrounding grade. The frequency of the inspections will be evaluated during the five-year review.

2.1.1.2 *Environmental Monitoring.*

A radiological survey is performed annually at TSF-06 Area B, TSF-07, TSF-09/18, and TSF-26 to monitor for windblown contamination. Results of these surveys will be compared with the baseline survey obtained in 2000, and any anomalies will be investigated to determine the nature and extent of the contamination. Radiological surveys are performed with an in situ high-purity germanium gamma-ray detector or an equivalent system. The system will be capable of reporting the Cs-137 concentration in the soil in terms of picocuries per gram (pCi/g). The results of the measurements will be compiled into a map showing the Cs-137 distribution if any is detected.

2.1.2 Operable Unit 1-07B

The WAG 1 OU 1-07B O&M activities are addressed in the following documents:

- *In Situ Bioremediation Operations and Maintenance Plan for Test Area North, Operable Unit 1-07B*, DOE/ID-11012, Rev. 1, March 2004 (DOE-ID 2004b).
- *Monitored Natural Attenuation Operations, Monitoring, and Maintenance Plan for Test Area North, Operable Unit 1-07B*, DOE/ID-11066 Rev. 0, June 2003 (DOE-ID 2003c).
- *New Pump and Treat Facility Operations and Maintenance Plan for Test Area North Final Groundwater Remediation, Operable Unit 1-07B*, DOE/ID-10684 Rev. 3, September 2003 (DOE-ID 2003d).

The remedial activity at Operable Unit 1-07B is ongoing and the tasks detailed in the above documents pertain to day-to-day operations. When the remedy is complete, the nature of O&M activities will be reevaluated and included in future revisions of this document.

2.2 WAG 2, Test Reactor Area

The following decision documents apply to WAG 2, TRA:

- *Final Record of Decision Test Reactor Area, Waste Area Group 2, Operable Unit 2-13,* DOE/ID-10586, December 1997 (DOE-ID 1997b)
- *Explanation of Significant Differences to the Record of Decision for the Test Reactor Area Operable Unit 2-13,* DOE/ID-10744, Rev. 0, May 2000 (DOE-ID 2000a).

O&M activities at WAG 2 are described in the *Operations and Maintenance Plan for the Final Selected Remedies and Institutional Controls at Test Reactor Area, Operable Unit 2-13* (DOE-ID 2000b). Table 2-2 lists the inspection, monitoring, and maintenance requirements with schedules for WAG 2.

See Appendix B for the WAG 2 O&M inspection log and map.

2.2.1 Inspection of Engineered Cover

The engineered barriers at TRA-03 are inspected annually. A visual inspection is performed annually for subsidence in the covers while walking the perimeter. If subsidence has occurred, coarse gravel will be used to fill the voids of the affected area. This may or may not require moving riprap to access the area.

Table 2-2. O&M activities and schedule at WAG 2.

Site	O&M Requirement	Action/Schedule	
Warm Waste Pond (TRA-03)	Periodic inspection of cover to ensure cover integrity and surface drainage away from covers.	Inspect soil cover integrity.	Annually
		Inspect engineered cover for settling and erosion.	Annually
		Assess surface water runoff.	Annually
	Radiological surveys.	Radiological surveys around the perimeter.	Annually
Chemical Waste Pond (TRA-06)	Periodic inspection of cover to ensure cover integrity and surface drainage away from covers.	Inspect soil cover integrity.	Annually
		Assess surface water runoff.	Annually
		Inspect vegetative cover.	Annually
Sewage Leach Pond (TRA-13) and Soil Contamination Area (TRA-13 SCA)	Periodic inspection of cover to ensure cover integrity and surface drainage away from covers.	Inspect soil cover integrity.	Annually
		Assess surface water runoff.	Annually
		Inspect vegetative cover.	Annually in late summer
	Radiological surveys.	Radiological survey over the covers.	Annually
		Radiological survey around perimeter.	

During a general walk-through of the covers, an annual visual inspection is performed for animal intrusion and subsidence in the covers. If subsidence or animal intrusion has occurred, the affected area will be filled with appropriate soil to bring the area up to the surrounding grade as determined by visual approximation.

2.2.2 Inspection of Native Covers

Annual inspection of the native covers at TRA-06, TRA-13, and the surrounding soil contamination area is performed during the late summer and will continue until adequate growth of nonweed species is established and observed for three consecutive years, as a minimum. Qualitative determinations of nongrowth or sparse growth areas will be made through comparative evaluations in undisturbed areas near the containment systems with consideration of the length of time since planting.

Qualitative information on surface erosion is collected during the annual inspection of the native soil covers. If soil movement, as evidenced by the accumulation of soil on the upslope side of plants, pedestalling of plants or rocks, or the formation of rills or gullies is observed, it will be recorded with the extent of erosion noted. If rills and gullies have occurred, appropriate soil will be added and compacted to

bring the area up to the surrounding grade, as determined by visual approximation, and then seeded. Photographs will be taken as needed.

2.2.3 Radiological Monitoring

Surface radiological monitoring is performed annually at TRA to identify potential migration of contamination and to ensure that the existing remedy is protective for occupational exposure. The surveys are performed around the perimeter and on the surface of the covers at TRA-13 and TRA-13 SCA using an in situ high-purity germanium detector. The survey around the perimeter of TRA-03 is performed using a GPRS. Results of the surveys are compared with previous annual surveys.

2.3 WAG 3, Idaho Nuclear Technology and Engineering Center

The following decision documents apply to WAG 3, the Idaho Nuclear Technology and Engineering Center (INTEC):

- *Final Record Of Decision, Idaho Nuclear Technology and Engineering Center, Operable Unit 3-13,* DOE/ID-10660, Rev. 0, October 1999 (DOE-ID 1999b).

- *Explanation of Significant Differences for the Final Record of Decision for the Idaho Nuclear Technology and Engineering Center, Operable Unit 3-13*, DOE/ID-11109, Rev. 0, January 2004 (DOE-ID 2004c)

These documents do not specify O&M activities. As remedial activities evolve at WAG 3, O&M activities will be reevaluated and included in future revisions of this document.

The two O&M plans listed below were prepared under WAG 3 OU 3-13:

- *ICDF Complex Operations and Maintenance Plan*, DOE/ID-11000, Rev. 1, October 2003 (DOE-ID 2003e)

- *Operation and Maintenance Plan for INTEC Operable Unit 3-13, Group 1, Tank Farm, Interim Action, Phases I and II*, DOE/ID-10771, Rev. 2, September 2004 (DOE-ID 2004d).

These two O&M plans are provided for reference, but the activities identified in them are not included in this plan.

The ICDF Complex O&M plan (DOE-ID 2003e) discusses transportation and disposal of waste to the ICDF. These activities are performed by ICDF personnel and are outside of the scope of this plan. Inspection and maintenance of the barrier that will cap the ICDF in the future may be included in later versions of this plan.

The O&M plan for OU 3-13 tank farm interim action (DOE-ID 2004d) discusses the day-to-day operations. Facility operations personnel implement and perform the activities identified in that plan. When the remedy is complete, the nature of O&M activities will be reevaluated and included in future revisions of this plan.

Appendix C is reserved for the future WAG 3 O&M inspection log and map.

2.4 WAG 4, Central Facilities Area

The following decision documents apply to WAG 4, CFA:

- *Record of Decision, Declaration for Central Facilities Area Landfills I, II, and III (Operable Unit 4-12), and No Action Sites (Operable Unit 4-03)*, October 1995 (INEL 1995a).
- *Final Comprehensive Record of Decision for Central Facilities Area Operable Unit 4-13*, DOE/ID-10719, Rev. 2, July 2000 (DOE-ID 2000c).
- *Explanation of Significant Differences for the Record of Decision for the Central Facilities Area Operable Unit 4-13*, DOE/ID-11030, Rev. 0, May 2003 (DOE-ID 2003f).

WAG 4 O&M activities are addressed in the *Operations and Maintenance Plan for the Final Selected Remedies at Central Facilities Area, Operable Unit 4-13* (DOE-ID 2004e). The WAG 4 O&M activities are summarized in Table 2-3. The following sections detail the activities.

See Appendix D for the WAG 4 O&M inspection log and map.

2.4.1 Soil Cover Erosion, Subsidence, and Intrusion

The soil covers at the three landfills and at the CFA-08 drainfield will be inspected annually for erosion. Visual inspection will identify areas on the covers affected by erosion and/or subsidence. Specifically, inspectors will be looking at areas of the covers that exhibit the following characteristics: (1) erosion rills in excess of 5 cm (2 in.) in depth or 15 cm (6 in.) in width for a distance of over 3 m (10 ft); (2) areas of the covers showing signs of ponding or localized subsidence in excess of 15 cm (6 in.); and (3) all animal intrusions into the top of the cover. The areas exhibiting these characteristics will be documented, photographed, and repaired with additional soil to return them to the required grade, and then they will be reseeded. Contingency inspections may also be conducted as needed after severe rainstorms, floods, tornadoes, earthquakes, or vandalism. The frequency of the soil cover inspection will be evaluated during the five-year review.

2.4.2 Topographic Survey

A topographic survey will be conducted for five-year reviews at the three landfills covers and at the rock armoring on the north end of Landfill II to check for subsidence in excess of 15 cm (6 in.) and 30 cm (12 in.), respectively. A 30.5 × 30.5-m (100 × 100-ft) grid has been established at the three landfills and a 9 × 9-m (30 × 30-ft) grid has been established for the rock armoring on the north end of Landfill II. Areas of concern demonstrating excess subsidence will be documented, and subsequent topographical surveys will be conducted annually for a minimum of three years. Continual movement or subsidence over a period of three years would indicate failure of the cover. If that occurs, the slopes will be evaluated to determine the cause of the movement. Evaluation of cover failure will consist of the following:

- Determining the type of slope failure that occurred (circular slope failure, subsidence, block/sliding failure) based on visual inspection of the area
- Determining the cause of the failure.

If a cover fails, DOE Idaho will determine the nature and extent of repairs with concurrence from the Idaho DEQ and the EPA. The frequency of topographic surveys will be evaluated during the five-year review.

Table 2-3. Summary of inspection schedule at WAG 4.

Site	O&M Requirement	Schedule/Action
CFA Landfill I (CFA-01)	Periodic topographical surveys and maintenance of soil cover's slope and contours; inspection for animal intrusion, vegetative growth, and cover erosion to verify cover integrity and surface drainage away from cover. Periodic inspection of soil monitoring equipment.	Topographical survey conducted in conjunction with five-year reviews. Annual inspection of soil monitoring equipment. Annual inspection and maintenance of soil cover to verify and ensure cover integrity.
CFA Landfill II (CFA-02)	Periodic topographical surveys and maintenance of soil cover's slope and contours; inspection for animal intrusion, vegetative growth, and cover erosion to verify integrity and surface drainage away from cover. Periodic inspection of soil monitoring equipment. Periodic inspection and corrective maintenance of rock armoring.	Topographical survey conducted in conjunction with five-year reviews. Annual inspection of soil monitoring equipment. Annual inspection and maintenance of soil cover to verify and ensure cover integrity. Annual inspection and maintenance of rock armoring.
CFA Landfill III (CFA-03)	Periodic topographical surveys and maintenance of soil cover's slope and contours; inspection for animal intrusion, vegetative growth, and cover erosion to verify cover integrity and surface drainage away from cover. Periodic inspection of soil monitoring equipment.	Topographical survey conducted in conjunction with five-year reviews. Annual inspection of soil monitoring equipment. Annual inspection and maintenance of soil cover to verify and ensure cover integrity.
CFA-08 Sewage Plant Drainfield	Periodic inspection and maintenance of soil cover slope; inspection for animal intrusion, vegetative growth, and cover erosion to verify cover integrity and surface drainage away from cover. Periodic survey of radiation levels.	Annual inspection and maintenance of soil cover to verify and ensure cover integrity. Survey of radiation levels in 2005. Survey of radiation levels in 2007 if determined necessary during the five-year review in 2005.

2.4.3 Soil Cover Vegetation

The vegetation on soil covers at the three CFA landfills and at the CFA-08 drainfield will be inspected annually to ensure proper growth. Success of vegetation shall be determined by comparing seeded areas with undisturbed areas in the vicinity of the cover, while factoring in length of time since seeding. Areas experiencing seeding failure—as evidenced by lack of perennial grass established, invasions by weeds (primarily Russian thistle, wheatgrass, and tumble mustard), or encroachment of shrubs (sagebrush and rabbitbrush)—will be documented and photographed. Any area larger than 3 × 3 m (10 × 10 ft) that exhibits seeding failure will be reseeded and fertilized. The reseeded areas will require follow-up inspections to ensure successful reseeding. The frequency of inspection of the vegetation on the covers will be evaluated during the five-year review.

2.4.4 Rock Armor

The rock armor on the north end of CFA-02, Landfill II, will be visually inspected annually to ensure there are no signs of subsidence or erosion. Where rock has eroded (identified as erosion rills or rock movement) or where rock surface has settled 30 cm (12 in.) in depth below the design grade, the underlying soil will be repaired. The rock will be removed, additional soil will be placed on the slope, and

the rock will be replaced. Follow-up inspections will be performed if repairs are required on the rock armor. The frequency of rock armor inspection will be evaluated during the five-year review.

2.4.5 Radiological Monitoring at CFA-08

A radiological survey will be performed at CFA-08 in 2005 in conjunction with the five-year review. If determined necessary in the five-year review in 2005, additional radiological surveys will be conducted in subsequent years. Results of the additional surveys will be compared with the baseline survey obtained in 2002, and any anomalies will be investigated to determine the nature and extent of the contamination. Based upon the investigation findings and with Agency concurrence, corrective measures, if needed, will be determined and acted upon. The frequency and intensity of the radiological surveys will be reevaluated during each five-year review.

Radiological surveys at CFA-08 will be performed with an in situ high-purity germanium gamma-ray spectrometer positioned at a fixed height of 1 m (3.3 ft) above the ground. The system will be capable of reporting the Cs-137 concentration in the soil in terms of pCi/g and will have an *a priori* method detection limit of 0.1 pCi/g in a 15-minute count. Measurements will be made at each corner of the fence surrounding the drainfield cover and at a maximum of 15.2-m (50-ft) intervals along the outside of the fence between the corners. A 15.2 × 15.2-m (50 × 50-ft) grid will be defined for the surface of the cover above the drainfield, and in situ measurements will be made at each grid. Measurements will also be made at the midpoint around the toe of the cover at a maximum of 15.2-m (50-ft) intervals. The results of the measurements will be compiled into a map showing the Cs-137 distribution, if any is detected.

2.5 WAG 5, ARA/PBF/SL-1

The following decision documents apply to WAG 5:

- *Record of Decision for Power Burst Facility Auxiliary Reactor Area Operable Unit 5-12,* DOE/ID-10700, Rev. 0, January 2000, (DOE-ID 2000d)

- *Record of Decision, Stationary Low-Power Reactor-1 and Boiling Water Reactor Experiment-I Burial Grounds (Operable Units 5-05 and 6-01), and 10 No-Action Sites (Operable Units 5-01, 5-03, 5-04 and 5-110)* INEL-95/0282, January 1996 (DOE-ID 1996).

2.5.1 SL-1

The *Stationary Low-Power Reactor-1 and Boiling Water Reactor Experiment-I Burial Ground Engineered Barriers Project Operations and Maintenance Plan, Operable Units 5-05 and 6-01* (INEL 1997) details the O&M activities at SL-1 and BORAX-I burial grounds. Table 2-4 summarizes the activities, and the following sections provide details of the required activities.

Refer to Appendix E for suggested inspection forms and maps of the areas.

Table 2-4. Summary of inspection schedule at SL-1 burial ground.

Site	O&M Requirement	Schedule/Action	
SL-1 Burial Ground	Periodic inspection of biotic barrier.	Inspect for erosion and intrusion.	Annually
	Periodic inspection of riprap.	Inspect for cover for settling and erosion.	Annually
	Radiological surveys.	Radiological surveys at perimeter the covers.	Annually

2.5.1.1 Rip Rap and Biotic Barrier. The engineered barriers will be inspected annually with particular attention being paid to settling of the barrier. Visual inspections will identify areas affected by erosion and/or subsidence. Areas on the top of the barriers showing signs of localized subsidence more that 30.5 cm (1 ft) deep will be repaired by the addition of rip rap in the subsided area. Subsidence in depths of less than 30.5 cm (1 ft) would be difficult to measure, as the riprap layer will be constructed of rock that is 30.5 to 70 cm (1 to 2 ft) in diameter.

Animal intrusions into the biotic barrier at SL-1 will be identified during annual inspections. Information will be recorded on the inspection forms found in Appendix E of this plan.

2.5.1.2 Revegetated Areas and Erosion. Engineered barriers will not be revegetated, but adjacent areas that have been disturbed by either the removal of contaminated soils or activities associated with the building of the caps will be revegetated. The revegetated areas will be monitored qualitatively during annual inspection in late summer for three years following seeding to ensure proper growth. Qualitative determinations of nongrowth areas or of sparse growth areas will be made in comparative evaluations of the growth in undisturbed areas near the burial grounds, with consideration of the length of time since planting.

Areas experiencing seeding failure, as evidenced by lack of perennial grass establishment, invasion by weeds (primarily Russian thistle, wheatgrass, and tumble mustard), or encroachment of shrubs (sagebrush and rabbitbrush), will be documented and photographed. At the time of the inspections of the revegetated cover, qualitative information on surface erosion will be collected in the revegetated zones. Observations of soil movement, as evidenced by the accumulation of soil on the upslope side of plants, pedestalling of plants or rocks, or the formation of rills or gullies, will be recorded. Photographs will be used as needed.

2.5.2 PBF and ARA

The *Operations and Maintenance Plan for Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000e) describes O&M requirements of the Power Burst Facility (PBF) and ARA. No O&M activities are specified for PBF sites. Significant remedial activities are currently (2004) underway at ARA. The activities involve ARA-01, ARA-02, ARA-06, ARA-12, ARA-16, ARA-23, and ARA-25. O&M activities at these sites currently involve either or both radiological surveys and heavy metals surveys. Refer to Table 2-5 for a listing of the environmental monitoring requirements. These surveys are performed annually until the first five-year review, at which time they may be discontinued with the concurrence of the Agencies. Heavy metal surveys will not be required for sites where analytical results obtained during remediation demonstrate that the heavy metal concentrations are below levels of concern. Following the remedial activities in progress, it is anticipated that the backfilled areas will require annual inspection for evidence of intrusion, subsidence, and soil erosion. Refer to Appendix E for a proposed inspection form and maps of the area.

2.6 WAG 6/10, BORAX/Sitewide Concerns

The following decision document applies to WAG 6/10:

- *Record of Decision Experimental Breeder Reactor-I/Boiling Water Reactor Experiment Area and Miscellaneous Sites, Operable Units 6-05 and 10-04,* DOE/ID-10980, November 2002 (DOE-ID 2002).

Table 2-5. Summary of the OU 5-12 environmental monitoring requirements.

Site	O&M Requirement	Schedule/Action
ARA-01: ARA-I Chemical Evaporation Pond	Heavy metal survey.	Five-year reviews for 100 years.
ARA-02: ARA-I Sanitary Waste System	Radiological survey of site perimeter.	Five-year reviews for 100 years.
ARA-06: ARA-II SL-1 Burial Ground	Radiological survey of site perimeter.	Five-year reviews for 100 years.
ARA-12: ARA-III Radioactive Waste Leach Pond	Radiological survey of site perimeter. Heavy metals survey of site soils.	Five-year reviews for 100 years.
ARA-16: ARA-I Radionuclide Tank	Radiological survey of site perimeter.	Five-year reviews for 100 years.
ARA-23: ARA-II Radiologically Contaminated Surface Soils	Radiological survey of site perimeter.	Five-year reviews for 100 years.
ARA-25: ARA-I Soils beneath the ARA-626 Hot Cells	Radiological survey of site perimeter. Heavy metals survey of site soils.	Five-year reviews for 100 years.

The *Stationary Low-Power Reactor-1 and Boiling Water Reactor Experiment-I Burial Ground Engineered Barriers Project Operations and Maintenance Plan, Operable Units 5-05 and 6-01* (INEL 1997) details the O&M activities at the BORAX-I burial grounds. Table 2-6 summarizes the activities, and the following sections provide details of the required activities. Refer to Sections 2.5.1.1 and 2.5.1.2 for details about the inspection activities for burial grounds.

Table 2-6. Summary of inspection schedule at BORAX-I burial grounds.

Site	O&M Requirement	Schedule/Action	
BORAX-I Burial Grounds	Periodic inspection of biotic barrier.	Inspect for erosion and intrusion.	Annually
	Periodic inspection of riprap.	Inspect cover for settling and erosion.	Annually
	Radiological surveys.	Radiological surveys at perimeter of the covers.	Annually

Groundwater monitoring activities associated with WAG 10 are performed as part of the Surveillance and Monitoring Program and are not included in this plan.

O&M activities at OU 10-04 involve collection and disposal of unexploded ordnance or explosive fragments that pose a threat to human health and the environment. These hazards are uncovered during routine activities and are not a scheduled, periodic activity. Therefore, no annual O&M inspections are required at ordnance sites. However, the annual O&M report will make note of any maintenance activities. The OU 10-04 O&M plan (DOE-ID 2004f) also discusses long-term monitoring requirements for ecological risk at the INEEL. However, the ecological monitoring and reporting activities are conducted by personnel in the Long-Term Ecological Monitoring Program in accordance with the requirements in the long-term ecological monitoring plan for the INEEL (INEEL 2004). Consequently, ecological monitoring activities are excluded from this document.

Refer to Appendix F for suggested inspection forms and maps of the BORAX area.

2.7 WAG 7, Radioactive Waste Management Complex

The following decision documents apply to WAG 7, the Radioactive Waste Management Complex (RWMC):

- *Record of Decision: Declaration for PAD-A at the Radioactive Waste Management Complex Subsurface Disposal Area,* February 1994 (Operable Unit 7-12) (DOE-ID 1994a).
- *Record of Decision for Organic Contamination in the Vadose Zone (OCVZ), RWMC, INEL,* December 1994 (Operable Unit 7-08) (DOE-ID 1994b).
- *Record of Decision – Declaration for Pit 9 at the Radioactive Waste Management Complex Subsurface Disposal Area,* October 1993 (DOE-ID 1993).
- *Pit 9 Interim Action Record of Decision at the Radioactive Waste Management Complex,* January 1995 (DOE-ID 1995b).
- *Explanation of Significant Differences for the Pit 9 Interim Action Record of Decision at the Radioactive Waste Management Complex,* September 1998 (DOE-ID 1998).
- "Two-Year Review, Idaho National Engineering Laboratory, Pad A, Subsurface Disposal Area, Operable Unit 7-12," December 17, 1997 (Wilkening 1997).

2.7.1 Pad A

O&M activities at Pad A are performed under guidance in the *Remedial Action Report Pad A Limited Action, Operable Unit 7-12* (INEL 1995b, Appendix N). Refer to Table 2-7 for a summary of O&M activities at Pad A. The sections that follow detail the maintenance activities required at Pad A.

Refer to Appendix G for suggested inspection log forms and for a map of Pad A at the Subsurface Disposal Area (SDA) within WAG 7.

2.7.1.1 Vegetative Cover. Vegetation on Pad A will be monitored on a monthly basis (except when it is covered with snow) to ensure proper vegetative coverage and weed control and evaluate erosion. Qualitative information about the vegetative cover will be documented on a monthly basis and will be included in the Long-term Stewardship project files and sent to the Administrative Record and Document Control (ARDC) and DOE Idaho for their files.

Monthly inspection will identify areas where the prescribed vegetation failed to grow (areas larger than 3 × 3 m [10 × 10 ft]). These inspections will note areas with a lack of perennial grass, invasion by weeds (primarily Russian thistle, cheatgrass, and tumble mustard), or encroachment of shrubs (sagebrush and rabbitbrush). At the time of vegetation monitoring, quantitative information on surface erosion will also be collected. Observations, such as soil movement (as evidenced by the accumulation of soil on the upslope side of plants, pedestalling of plants or rocks, ponding, or the formation of rills or gullies), will be recorded on the sample form, and the extent of erosion will be noted.

Table 2-7. O&M activities and schedule at WAG 7 Pad A.

Item	Activity	Description	Frequency
1	Perform lysimeter sampling by the WAG 7 organization.	Lysimeter vadose zone samples are collected and analyzed for nitrates. This task is to be completed a minimum of once a year, in accordance with the Pad A ROD. Due to the limited sampling volumes, nitrates will be the number one priority for the spring sampling event.	Annually and semi-annually with the results being sent to DOE Idaho, EPA, and Idaho DEQ.
2	Inspect vegetative cover, soil cover, and rock armor.	Vegetative cover, soil cover, and rock armor are inspected monthly, including winter when feasible. Monthly inspection results are retained in the Long-term Stewardship Pad A files and a copy sent to the ARDC.	Ongoing (monthly). Requirements will be evaluated during the five-year review.[a]
3	Evaluate vegetative cover, soil cover, and rock armor monitoring requirement.	Following the five-year monitoring period,[a] the Long-term Stewardship organization along with EPA, Idaho DEQ, and DOE Idaho will determine whether the monitoring frequency can be reduced. A digital topographic survey or Global Positioning System survey of the cover has been conducted during the summers of 2001, 2002, and 2004 and will be repeated in 2004.	Requirements will be evaluated during the five-year review.[a]
4	Report inspection results.	The Long-term Stewardship organization will report the results of inspection and maintenance activities to DOE Idaho on a monthly basis. At the completion of the independent inspection (performed in late summer), the results and all monthly inspection results for that fiscal year will be sent to DOE Idaho, the Idaho DEQ, and the EPA along with.	Ongoing (monthly and annual). Requirement will be evaluated during the five-year review.[a]
5	Sample perched water monitoring well USGS-29 for nitrates.	The United States Geological Survey will sample semi-annually for nitrates under the direction of the WAG 7 organization.	Ongoing. Requirement will be evaluated during the five-year review.[a]

a. The two-year review was performed in 1997. A five-year review is scheduled in 2005.

Two times a year, weeds will be removed as necessary—first in early summer (June) before the weeds "set" their seeds and then in the first part of fall (September/October). Removal of weeds to the extent practicable is recommended, per the independent inspector, to reduce their competition with desired vegetation. Removal of weeds will encompass all of Pad A, including the rock armor, to reduce transporting weed seeds to exposed areas. Hand pulling the weeds or using gas weed eaters is the recommended method of weed removal, because the use of herbicides is prohibited on the INEEL site. All weeds will be bagged and disposed of properly.

During the month of October, the Pad A area will be revegetated. Crested wheatgrass "plugs" or crested wheatgrass seed will be planted in areas of need or concern, according to INEEL site guidelines.

No fertilizer will be used due to nitrate content. Areas of need or concern will be determined by an independent inspector in the late summer each year and documented in the yearly inspection report.

2.7.1.2 Soil Cover. A trained Long-term Stewardship representative will inspect the cover monthly, including during the winter (except when covered with snow), with particular attention being paid to areas where the vegetative cover has degraded. Visual inspection will identify areas on the slopes affected by erosion and/or subsidence. Qualitative information will be documented on a monthly basis for soil erosion evaluation and will be incorporated into the Long-term Stewardship project files. Copies will be sent to DOE Idaho and the ARDC.

Erosion and/or subsidence rills will be backfilled when in excess of 7.6 cm (3 in.) deep or 15.2 cm (6 in.) wide for a distance of over 3 m (10 ft). Areas on the top of the cover showing signs of ponding or localized subsidence will be addressed and backfilled. The backfill material will be suitable for required compaction and free of debris, organic materials, frozen matter, and excessive moisture or dryness. All repairs of cap components must be completed in accordance with original construction specifications and requirements. These repairs should be documented with information such as moisture content and compaction.

During soil cover inspections, all animal intrusions into the soil cover will be documented, and all animal intrusions larger than 5 cm (2 in.) in diameter will be filled with topsoil. If required to meet vegetative cover requirements, the soil cover will be replanted with crested wheatgrass in the fall.

A digital topographic survey or Global Positioning System survey of the cover has been conducted during the summers of 2001, 2002, and 2003 and will be repeated in 2004.

2.7.1.3 Rock Armor. The south face of Pad A is covered with a rock armor rather than vegetation because of the steeper slope. A trained representative of the Long-term Stewardship organization will inspect the rock armor monthly, including the winter months when feasible. The rock armor is inspected to ensure there are no signs of subsidence or erosion. Qualitative information will be documented on a monthly basis and filed in the Long-term Stewardship project files. Copies will be sent to ARDC and DOE Idaho.

If the rock armor subsides and/or erodes (erosion rills, rock movement, or rock settling more that 30 cm (1 ft) below the design grade), the rock armor will be repaired. If subsidence of underlying soil has caused the rock armor to be displaced, additional rock armor might need to be backfilled. The rock armor replacement will consist of durable angular or crushed stone free of organic materials with a minimum diameter of 7.6 cm (3 in.) and a maximum size not greater than 15.2 cm (6 in.). Material gradation will be verified by visual inspection.

2.7.1.4 Lysimeter Sampling. The Pad A lysimeter vadose wells (PA-01, PA-02, PA-03, D-06, and TW-1) will be sampled at least once a year, preferably in late spring, for nitrates. Nitrates will be the number one priority for the spring sampling event.

Per an agreement between DOE Idaho and the Agencies, the USGS-92 well, which is an open borehole perched water monitoring well, will be monitored for nitrates under the Pad A agreement from the two-year review conducted in December 1997.

The Pad A nitrate sampling is currently performed by the WAG 7 organization. Reports are compiled and retained in the Long-term Stewardship project files. A copy will be sent to DOE Idaho for its files and distribution to the Agencies.

Refer to Appendix G of this document for a map of Pad A at the SDA and for a suggested inspection form.

2.7.2 Organic Contamination in the Vadose Zone

The following document details the O&M activities related to the organic contamination in the vadose zone:

- *Operations and Maintenance Plan for Operable Unit 7-08, Organic Contamination in the Vadose Zone*, INEEL/EXT-01-00016, Rev. 0, August 2001 (INEEL 2001).

The remedial activity at OU 7-08 is ongoing, and the tasks detailed in the document above pertain to day-to-day operations. When the remedy is complete, the nature of O&M activities will be reevaluated and included in future revisions of this plan.

2.7.3 Pit 9

The remedial activity at Pit 9 is ongoing. When the remedy is complete, the nature of O&M activities will be reevaluated and included in future revisions of this plan.

2.8 WAG 8, Naval Reactors Facility

The Naval Reactors Facility is outside of the control of DOE Idaho as of June 2004, and therefore O&M activities at WAG 8 are not covered in this report.

2.9 WAG 9, Argonne National Laboratory-West

In 2005, Argonne National Laboratory-West will be placed under the control of DOE Idaho, and O&M activities, if any, will be included in future revisions of this plan.

3. O&M REPORTING

Data and results from annual O&M activities, including inspections, radiological monitoring, maintenance, and repairs will be compiled and addressed in one annual sitewide report. The report will contain documentation of the scheduled inspection, follow-up inspections, contingency inspections, and maintenance activities. Any identified deficiencies and completed corrections will be noted in the annual report. In addition, a proposed timeframe for correcting identified deficiencies that have not been completed yet will be presented in the annual report. Specific inspection report forms and photographs will be filed in the Long-term Stewardship files and in EDMS.

Conducting and reporting of routine operational activities related to organic contamination in the vadose zone (Section 2.7.2), the New Pump and Treat Facility (Section 2.1.2), the tank farm interim action, and ICDF (Section 2.3) will be performed by the respective projects and excluded from the annual O&M report. In addition, requirements for groundwater monitoring and reporting and for environmental monitoring and reporting are excluded from this report and will not be included in the annual O&M report.

The information contained in the annual O&M report will be used in the five-year review and other reports. Consequently, to facilitate the reporting and review process, the annual O&M report will be reviewed by the Agencies on a 30-day schedule.

4. REFERENCES

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DOE-ID, 1994b, *Record of Decision for Organic Contamination in the Vadose Zone (OCVZ), RWMC, INEL,* U.S. Department of Energy Idaho Operations Office, December 1994.

DOE-ID, 1995a, *Record of Decision, Declaration for the Technical Support Facility Injection Well (TSF-05) and Surrounding Groundwater Contamination (TSF-23) and Miscellaneous No Action Sites Final Remedial Action*, U.S. Department of Energy Idaho Operations Office, DOE/ID-10139, August 1995.

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DOE-ID, 1996, *Record of Decision, Stationary Low-Power Reactor-1 and Boiling Water Reactor Experiment-I Burial Grounds (Operable Units 5-05 and 6-01), and 10 No-Action Sites (Operable Units 5-01, 5-03, 5-04 and 5-110)* INEL-95/0282, Department of Energy Idaho Operations Office, U.S. Environmental Protection Agency Region 10, and Idaho Department of Environmental Quality, January 1996.

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DOE-ID, 1997b, *Final Record of Decision for Test Reactor Area*, *Waste Area Group 2, Operable Unit 2-13*, U.S. Department of Energy Idaho Operations Office, DOE/ID-10586, December 1997.

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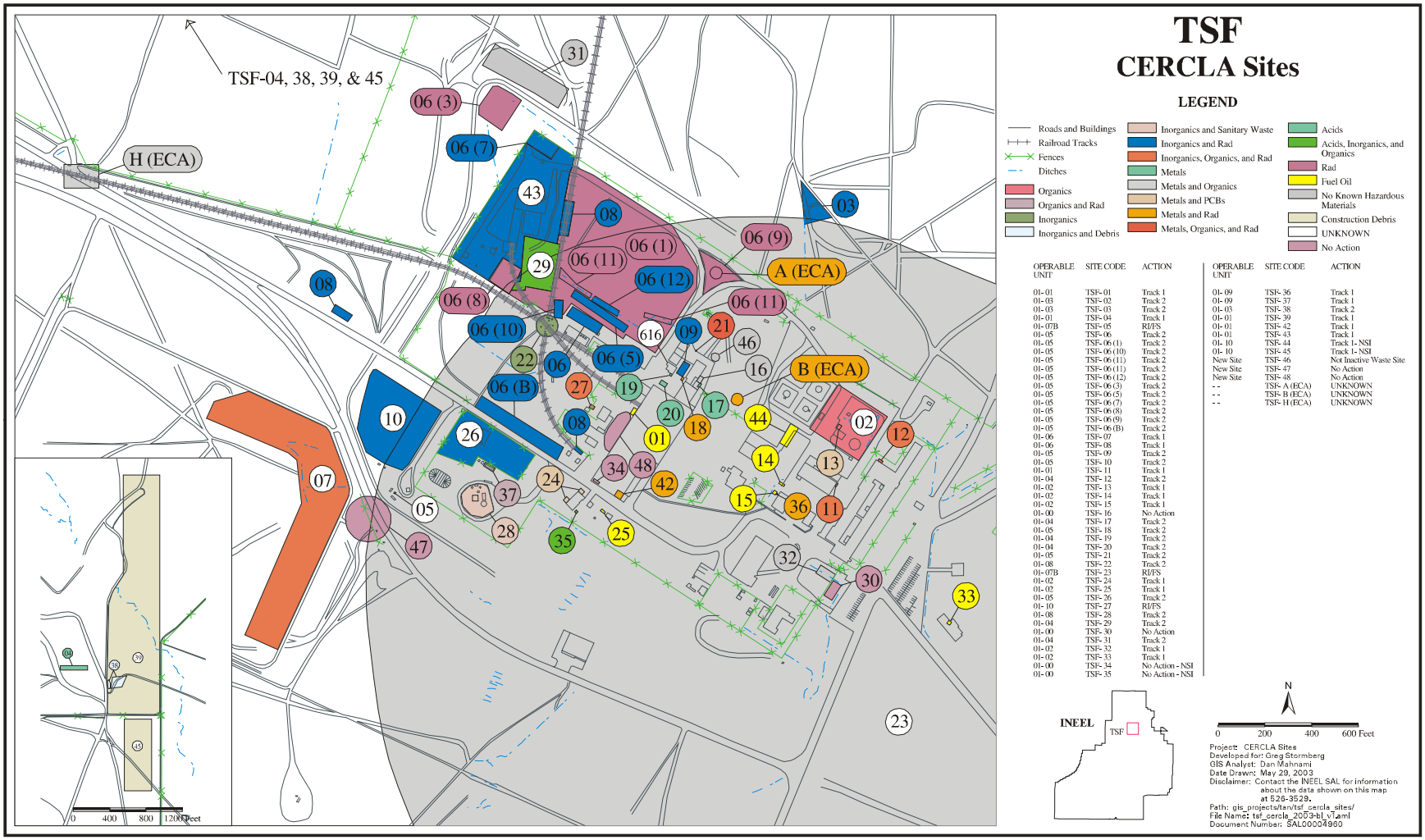
Appendix A

WAG 1 O&M Inspection Log and Map

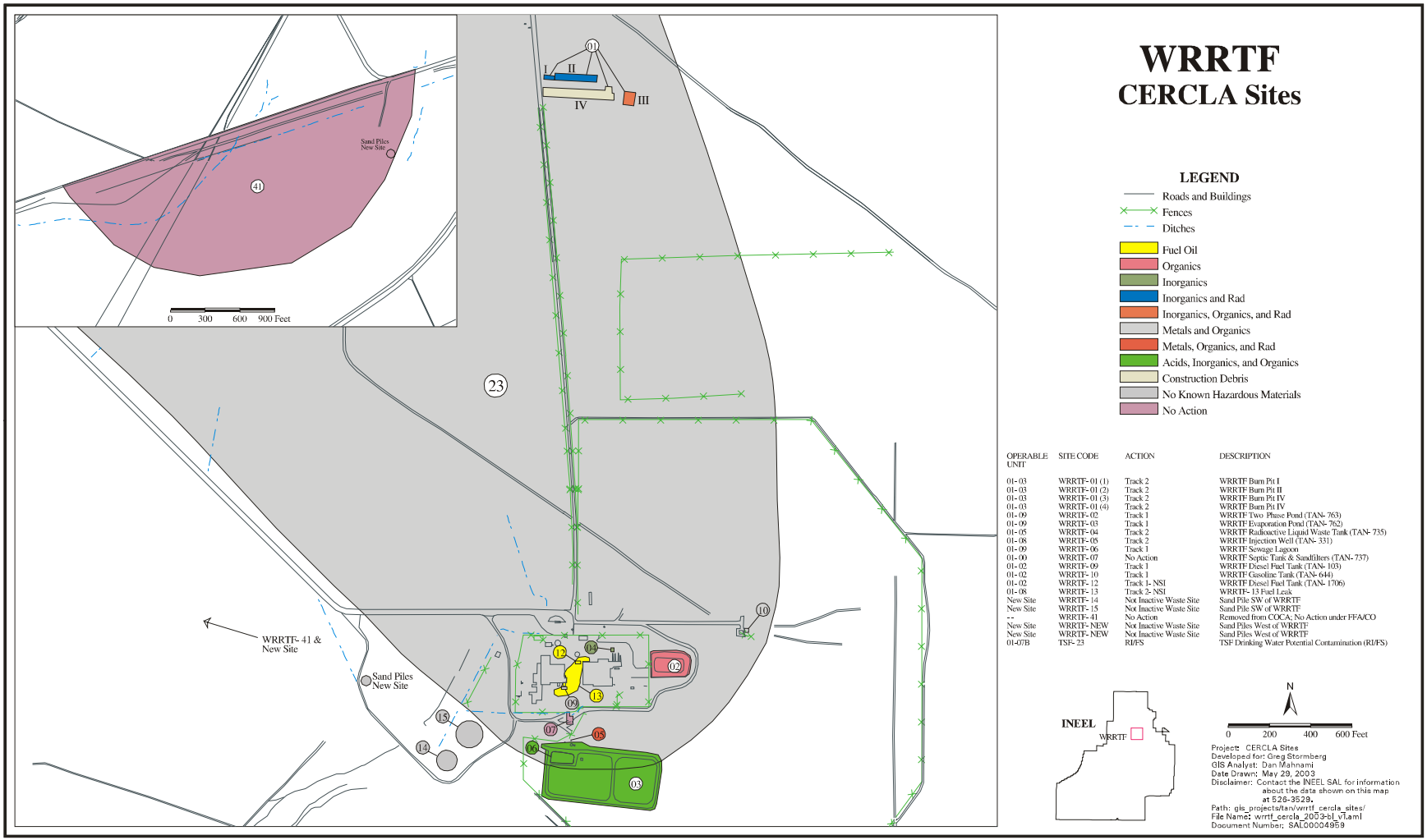
WAG 1 O&M Inspection Form

INSPECTION ACTIVITY AT WAG 1	TSF-06 Area B	TSF-26	TSF-09/18	TSF-07	WRRTF-01 TSF-03	COMMENTS/ RECOMMENDED REPAIR
VEGETATIVE COVER						
1. Inspect for non-growth/sparse growth/weeds.	N/A	N/A	N/A	N/A		Possible future activity.
SOIL COVER						
1. Inspect for erosion areas/animal intrusion.	N/A	N/A	N/A	N/A		Possible future activity.
2. Inspect for subsidence areas or slope movement.	N/A	N/A	N/A	N/A		Possible future activity.
GENERAL CONDITION OF SITE						
1. Inspect for erosion areas/animal intrusion.				N/A		
2. Inspect for subsidence areas.				N/A		
ENVIRONMENTAL MONITORING (In situ gamma scanner)						
1. Perform annual radiological monitoring					N/A	

Comments



Map of WAG 1 CERCLA sites.



Map of WRRTF at WAG 1.

Appendix B

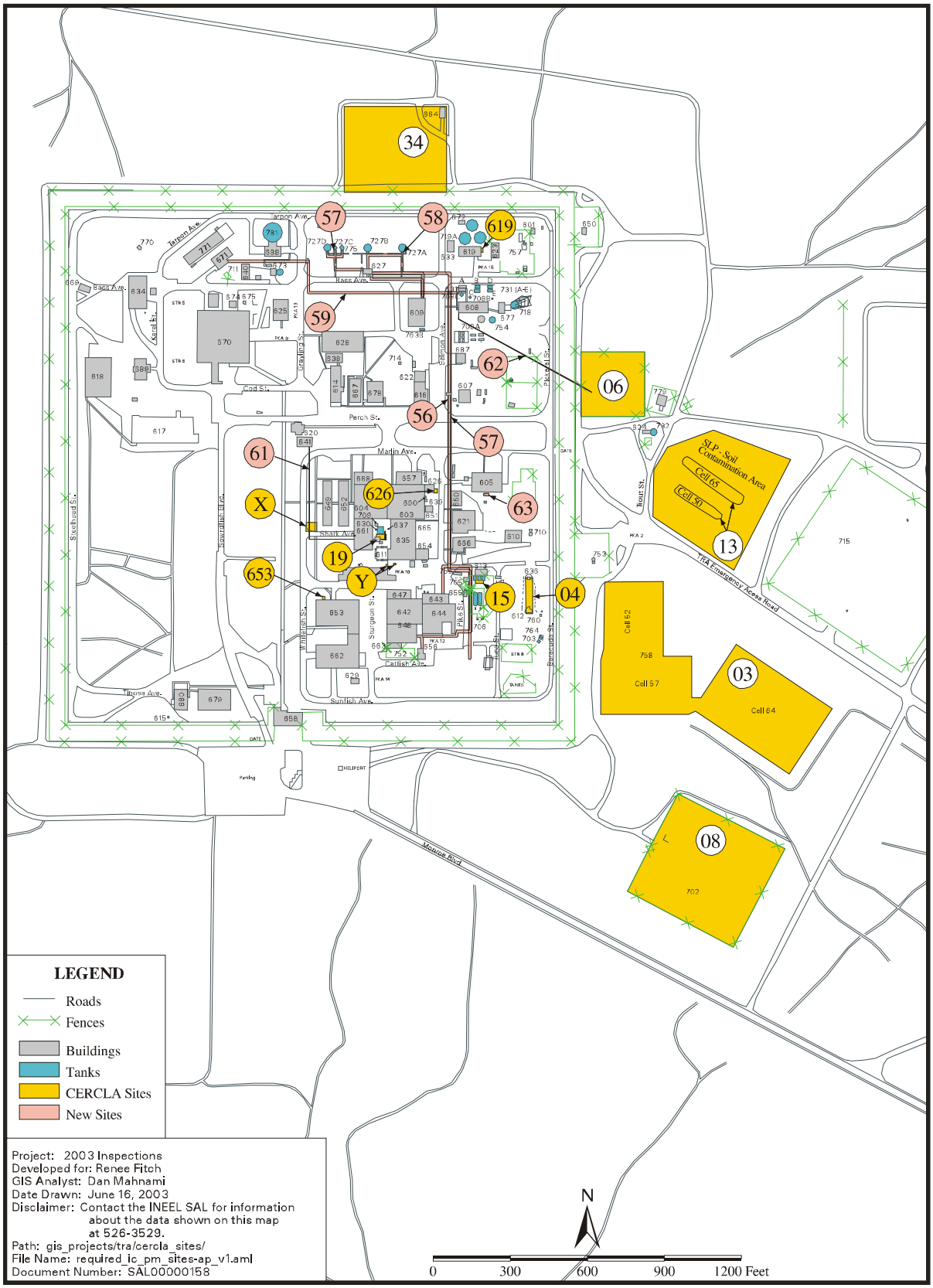
WAG 2 O&M Inspection Log and Map

WAG 2 O&M Inspection Form

O&M INSPECTION ACTIVITY AT TRA	TRA-03	TRA-06	TRA-13	TRA-13 SCA	COMMENTS/RECOMMENDED REPAIR
REVEGETATED AREAS					
1. Inspect for non-growth areas.					
2. Inspect for non-sparse growth areas.					
3. Inspect for weed encroachment.					
NATIVE SOIL COVER					
1. Inspect for erosion areas/animal intrusion.	**N/A**				
2. Inspect for subsidence areas or slope movement.	**N/A**				
3. Conduct topographical survey.	**N/A**				
PERIMETER OF RADIOLOGICAL SURVEY					
1. Perform perimeter radiological survey.	**N/A**		**N/A**	**N/A**	
RADIOLOGICAL SURVEY OF SURFACE OF SOIL COVER					
1. Perform surface radiological survey		**N/A**			
RIP RAP BARRIER					
1. Inspect for erosion areas.		**N/A**	**N/A**	**N/A**	
2. Inspect for subsidence areas..		**N/A**	**N/A**	**N/A**	
3. Inspect for biological intrusion.		**N/A**	**N/A**	**N/A**	
4. Inspect for effectiveness of surface water runoff.		**N/A**	**N/A**	**N/A**	

Additional Comments or Notes:

TRA-03 is the Warm Waste Pond. Perimeter is vegetated. Cover is rip rap.
TRA-06 is the Chemical Waste Pond.
TRA-13 is the Sewage Leach Ponds.
TRA-13 SCA is the soil contamination area surrounding the Leach Ponds.



Map of WAG 2 CERCLA sites.

Appendix C

WAG 3 O&M Inspection Log and Map

Appendix C

WAG 3 O&M Inspection Log and Map

This appendix is intentionally left empty. Future O&M activities at INTEC will be placed here.

Appendix D

WAG 4 O&M Inspection Log and Map

WAG 4 O&M Inspection Form

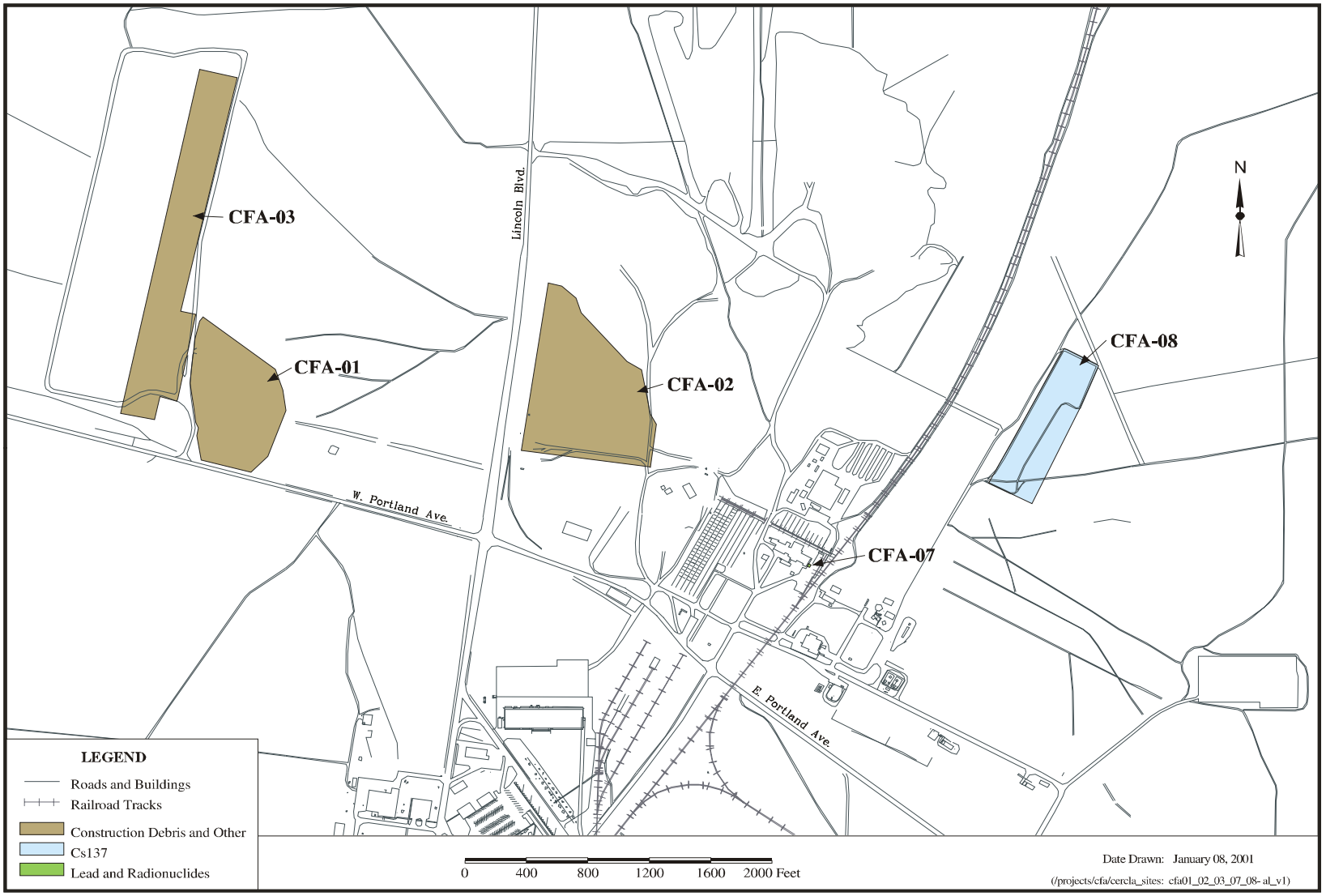
INSPECTION ACTIVITY AT LANDFILLS	CFA-01	CFA-02	CFA-03	COMMENTS/RECOMMENDED REPAIR
VEGETATIVE COVER				
1. Inspect for non-growth/sparse growth/weeds.				
SOIL COVER				
1. Inspect for erosion areas/animal intrusion.				
2. Inspect for subsidence areas or slope movement.				
3. Conduct topographical survey.				
TIME DOMAIN REFLECTOMETER (TDR)				
1. Inspect cabinet interior for unusual dirt or debris.				
2. Inspect exterior and interior of cabinet for deterioration and presence of moisture or water.				
3. Inspect solar collector barrel for condition/function.				
4. Inspect and verify presence of guard post and/or impingement posts.				
SOIL GAS WELLS and NEUTRON PROBE ACCESS TUBES (NPATs)				
1. Inspect for integrity/cleanliness.				
3. Inspect, rust on cover, well casing damage.				
4. Inspect guard posts around well cover.				
ROCK ARMOR				
1. Inspect to verify no more than 12 inches of subsidence of rock armor.	**N/A**		**N/A**	
2. Conduct topographical survey.				During 5-year review.

Additional Comments or Notes:

WAG 4 O&M Inspection Form – continued

CFA DRAINFIELD CFA-08		COMMENTS/RECOMMENDATIONS
1. Document No Excavations or Drilling.		
2. Inspect vegetation for sparse growth.		
3. Inspect vegetation for weed encroachment.		
4. Inspect vegetation for non-growth.		
5. Inspect for erosion.		
6. Inspect for subsidence.		
7. Inspect for animal intrusion.		
8. Inspect permanent markers.		
9. Conduct radiological survey.		In 2005 at the 5-year review.

Additional Comments or Notes:



Map of WAG 4 O&M inspection sites.

Appendix E

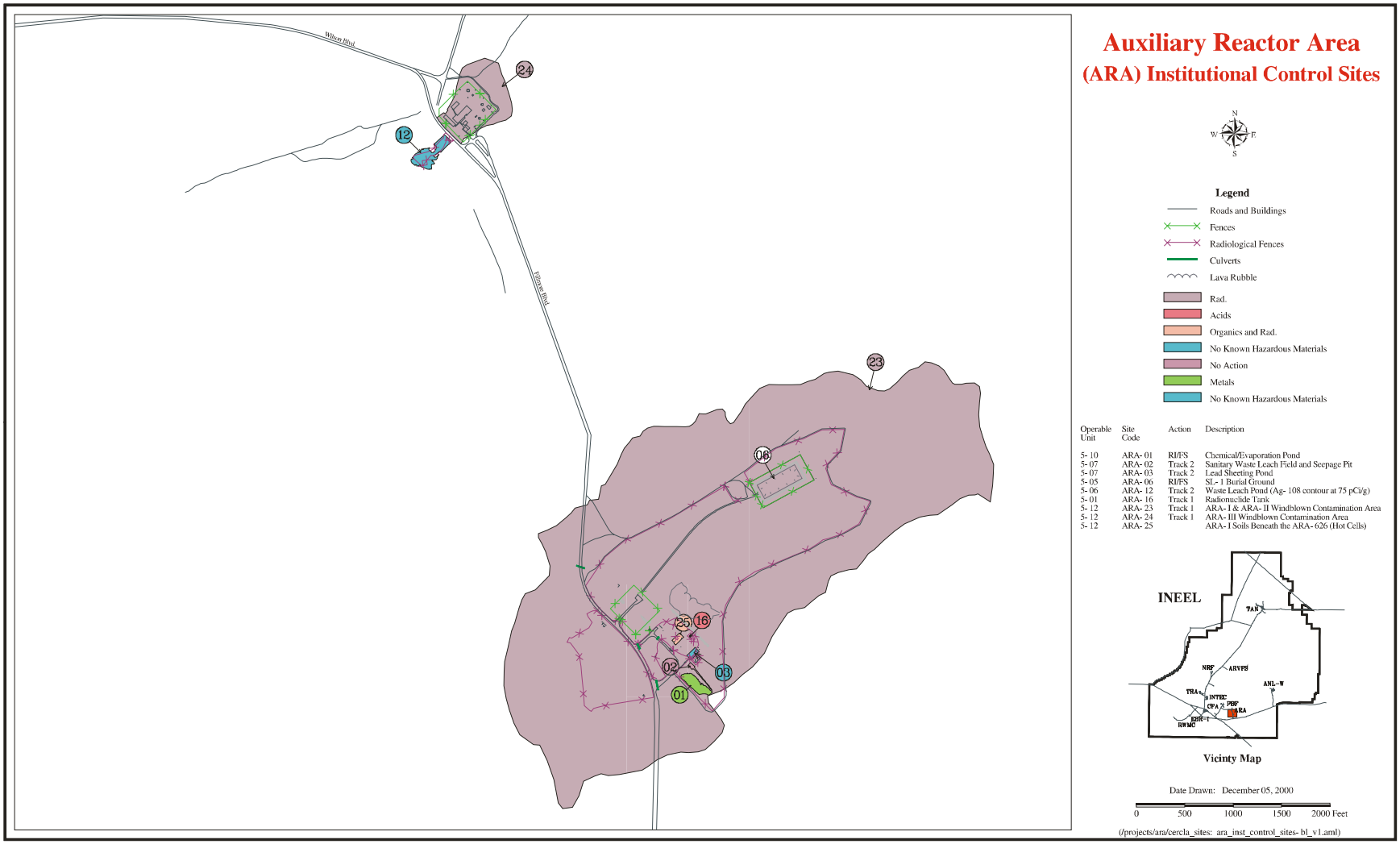
WAG 5 O&M Inspection Log and Map

WAG 5 O&M Inspection Form

INSPECTION ACTIVITY AT ARA and PBF	ARA-01	ARA-02	ARA-06	ARA-12	ARA-16	ARA-23	ARA-25
BACKFILLED AREA (POST REMEDIATION)							
1. Inspect for intrusion.							
2. Inspect for subsidence areas or slope movement.							
3. Inspect for erosion.							
4. Inspect vegetative cover when applicable.							
ENVIRONMENTAL MONITORING							
1. Radiological survey of site perimeter at 5-year review.	**N/A**						
2. Heavy metal survey of site soils at 5-year review..		**N/A**	**N/A**		**N/A**	**N/A**	

O&M INSPECTION ACTIVITY AT SL-1	**SL-1 Burial Ground**	COMMENTS/RECOMMENDED REPAIR
BIOTIC BARRIER		
1. Inspect for erosion and intrusion		
2. Inspect cover for settling and erosion.		
RIP RAP BARRIER		
1. Inspect for erosion and intrusion		
2. Inspect cover for settling and erosion.		
PERIMETER OF RADIOLOGICAL SURVEY		
1. Perform perimeter radiological survey.		

Comment or notes.



Map of ARA and SL-1.


Power Burst Facility
(PBF) Institutional Control Sites
N
W
E
S
Legend
Roads and Buildings
Fences
No Action
Metals and Rad.
Rad.
No Known Hazardous Materials
No Action
Operable Unit
Site Code
Action
Description
5- 13 PBF- 10 Inter. Action Evaporation Pond
5- 02 PBF- 12 Track 1 Leach Pond
5- 03 PBF- 13 Track 1 Rubble Pit
5- 02 PBF- 21 Track 1 Large Leach Pond
5- 09 PBF- 22 Track 2 Leach Pond
5- 02 PBF- 26 Track 1 SPERT Lake
INEEL
TAN
NRF
ARVFS
ANL-W
TRA
INTEC
CFA
PBF
ARA
EBR-I
RWMC
Vicinty Map
Date Drawn: December 05, 2000
0
500
1000
1500
2000 Feet
(/projects/ara/cercla_sites: pbf_inst_control_sites- bl_v1.aml)

Map of PBF.

Appendix F

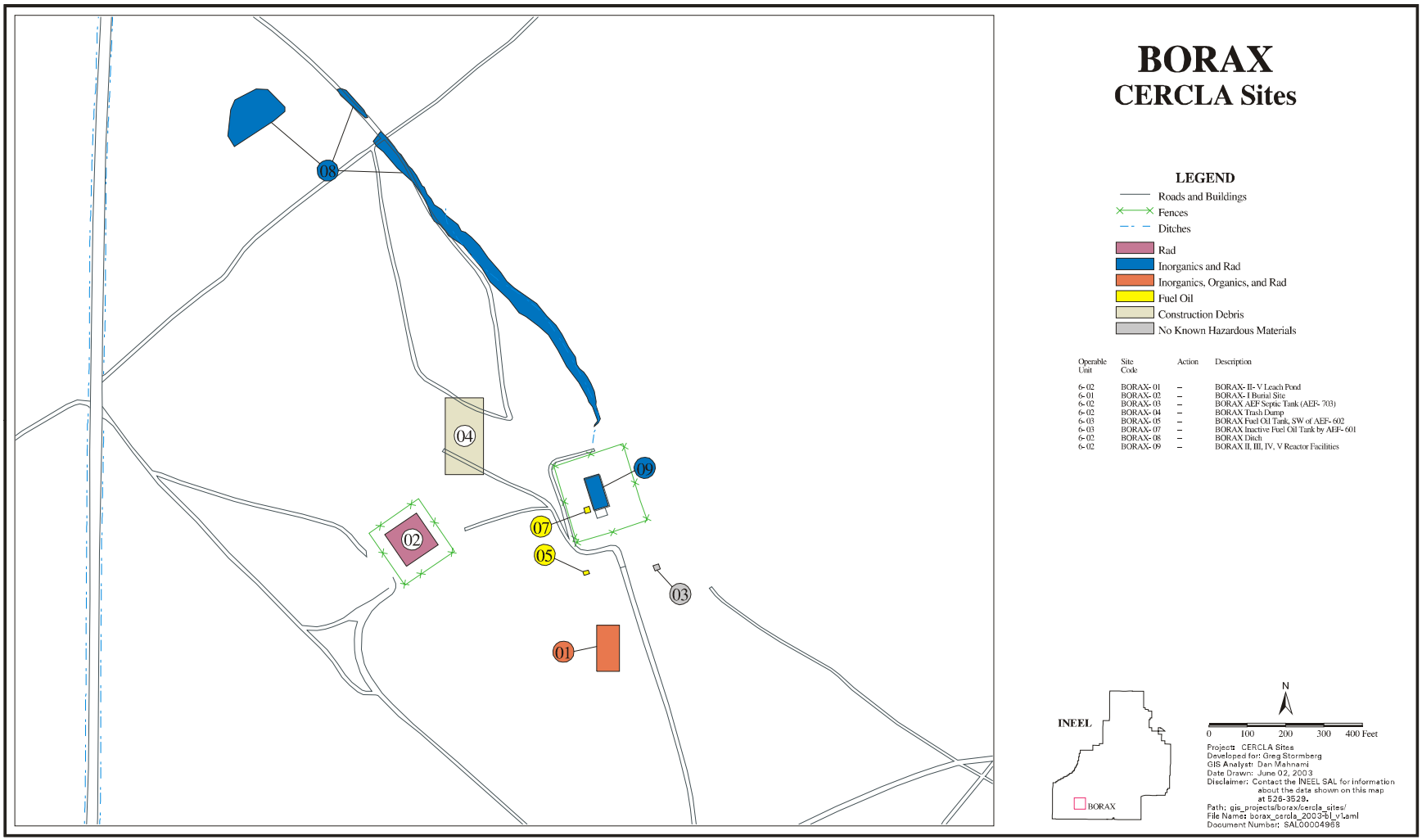
WAG 6/10 O&M Inspection Log and Map

Appendix F

WAG 6/10 O&M Inspection Log and Map

O&M INSPECTION ACTIVITY AT BORAX	**BORAX Burial Ground**	COMMENTS/RECOMMENDED REPAIR
BIOTIC BARRIER		
1. Inspect for erosion and intrusion		
2. Inspect cover for settling and erosion.		
RIP RAP BARRIER		
1. Inspect for erosion and intrusion		
2. Inspect cover for settling and erosion.		
PERIMETER OF RADIOLOGICAL SURVEY		
1. Perform perimeter radiological survey.		

Comment or notes.


BORAX
CERCLA Sites
LEGEND
Roads and Buildings
Fences
Ditches
Rad
Inorganics and Rad
Inorganics, Organics, and Rad
Fuel Oil
Construction Debris
No Known Hazardous Materials
Operable Unit
Site Code
Action
Description
6-02 BORAX-01 – BORAX-II-V Leach Pond
6-01 BORAX-02 – BORAX-I Burial Site
6-02 BORAX-03 – BORAX AEF Septic Tank (AEF-703)
6-02 BORAX-04 – BORAX Trash Dump
6-03 BORAX-05 – BORAX Fuel Oil Tank, SW of AEF-602
6-03 BORAX-07 – BORAX Inactive Fuel Oil Tank by AEF-601
6-02 BORAX-08 – BORAX Ditch
6-02 BORAX-09 – BORAX II, III, IV, V Reactor Facilities
01
02
03
04
05
07
08
09
INEEL
BORAX
N
0 100 200 300 400 Feet
Project: CERCLA Sites
Developed for: Greg Stormberg
GIS Analyst: Dan Mahnami
Date Drawn: June 02, 2003
Disclaimer: Contact the INEEL SAL for information about the data shown on this map at 526-3529.
Path: gis_projects/borax/cercla_sites/
File Name: borax_cercla_2003-bl_v1.aml
Document Number: SAL00004968

Map of BORAX.

Appendix G

WAG 7 O&M Inspection Log and Map

OU 7-12 Pad A O&M Inspection Report Form

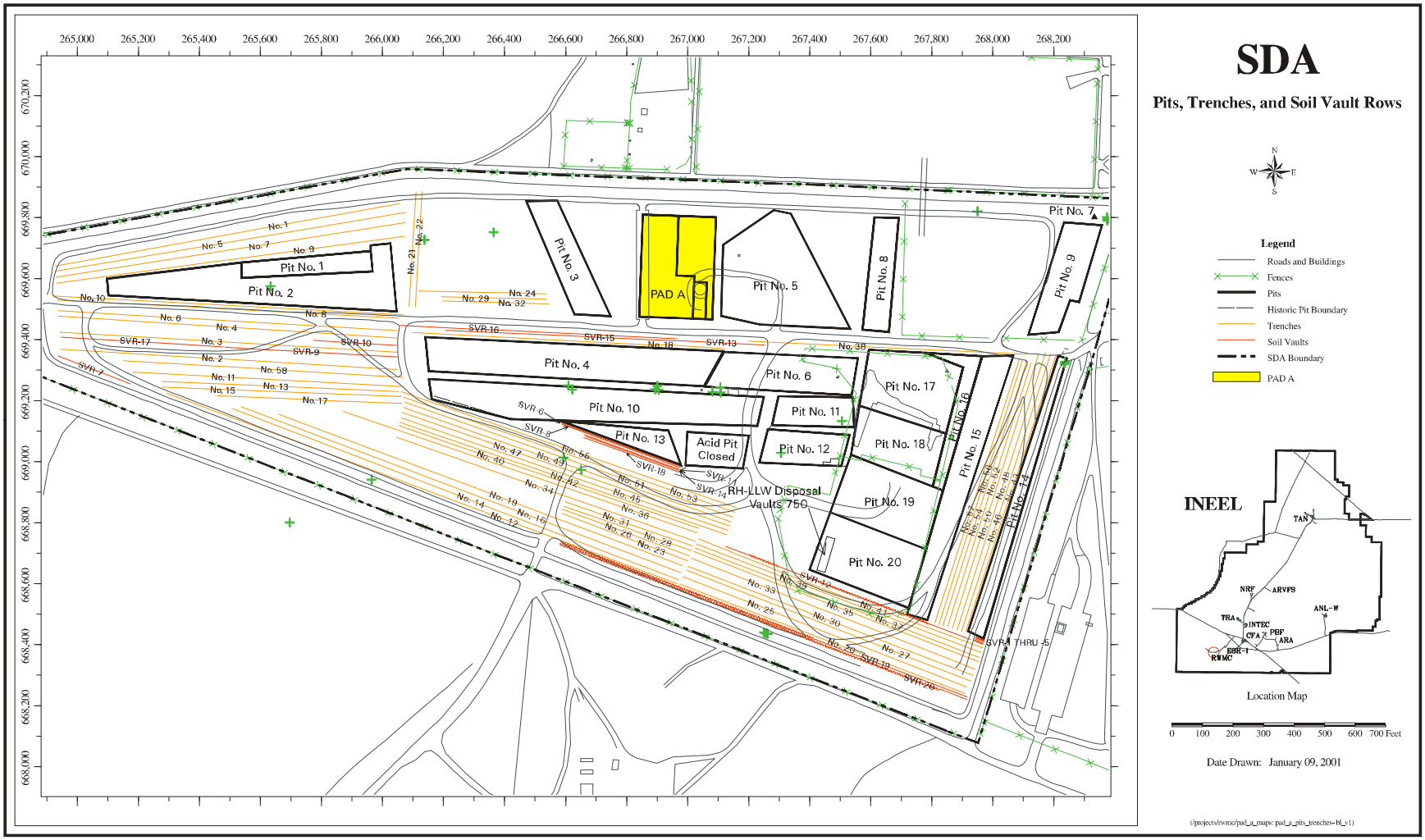
Date of Inspection: _____

Inspection Activity	Status[a]	Comments, Recommendations, and Location of Concern
VEGETATIVE COVER 1. Inspect for nongrowth areas (larger than 10 ft x 10 ft area).		
2. Inspect for sparse growth areas or areas that have degraded month to month.		
3. Inspect for encroachment of weeds or shrubs.		
SOIL COVER 1. Inspect for erosion and or subsidence areas in excess of 3 in. in depth or 6 in. in width.		
2. Inspect for signs of ponding or localized subsidence.		
3. Inspect for any animal intrusion into the soil cover.		
ROCK ARMOR 1. Inspect to verify a minimum of 12 in. of rock armor.		
2. Inspect for weed encroachment.		
3. Inspect for possible signs of subsidence and/or erosion.		
4. Inspect for places that need additional rock armor.		
NOTE: Lysimeter sampling and maintenance is performed by the WAG 7 organization.		

Additional Comments:

a. Status is satisfactory (S), unsatisfactory (U), or not inspected (NI).

Inspector name:	
Inspector signature:	



Map showing location of Pad A at the SDA.